UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,990	10/06/2000	Rusty Tucker	001580-713	1955

			EXAMINER
21839	7590	06/18/2004	OSMAN, RAMY M

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ART UNIT	PAPER NUMBER
2157	11

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/680,990	TUCKER, RUSTY
	Examiner	Art Unit
	Ramy M Osman	2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
> - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *22 March 2004*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-10,14-30,34-50 and 54-70* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-10,14-30,34-50 and 54-70* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *19 April 2001* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   This communication is responsive to the amendment filed on March 22, 2004. Claims

1,14,19,21,34,41,43,54 and 61 were amended. Claims 11-13,31-33,51-53 and 71-80 were

canceled. Claims 1-10,14-30,34-50 and 54-70 are pending. The rejections cited are as stated

below.

Drawings

2.   The formal drawings received on 4/19/2001 are acceptable.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 1,3,4,21,23,24,41,43,44,61,63,64 are rejected under 35 U.S.C. 102(e) as being

unpatentable over Bellaton (U.S. Patent No. 6,473,425) in view of Shaffer et al (U.S. Patent No.

6,236,642).

5.   In reference to claims 1,21,41,61, Bellaton teaches a method for real time transmission of

information content between a network server and a network client comprising the steps of:

Transmitting successive packets of said content from said server to a retransmit module

(columns 1 lines 1-45 & column 7 lines 50-67 & column 8 lines 1-25, Bellaton discloses

transmitting packets from a source to a router);

Assigning at said retransmit module to each of said packets a sequence number and a first

timer (column 3 lines 10-45, column 8 lines 25-67 & column 9 lines 1-40, Bellaton discloses

assigning packet ID information and assigning a timer when packet is sent);

Transmitting further each of said packets from said retransmit module to said network

client (columns 1 lines 1-45, Bellaton discloses transmitting a packet from a router to a

destination);

Transmitting from said network client to said retransmit module an acknowledgment for

each of said packets received at said network client (column 3 lines 10-45, column 4 lines 1-40

& column 5 lines 20-67, Bellaton discloses receiving an acknowledgement from the destination

(client));

Retransmitting from said retransmit module any of said packets upon expiration of said

first timer assigned thereto prior to an acknowledgment for said any one of said packets being

received (column 3 lines 10-45, column 4 lines 1-40 & column 5 lines 20-67, Bellaton discloses

retransmitting the packet); and

Removing from said retransmit module any of said packets upon an occurrence of a

predetermined event prior to an acknowledgement for said any of said packets being received

(column 5 lines 20-67, column 6 lines 25-67, & column 9 lines 40-67, Bellaton discloses

dropping a packet prior to an acknowledgement).

Bellaton fails to explicitly teach designating said packet as either one of a frame packet

and a differential packet based upon the content of said packet, and wherein differential packets

are removed more frequently than frame packets.. However, Shaffer teaches a network

retransmission system identifying two types of video signal packets as regular video frames and

as frames with small changes. The packets containing video frames with small changes are

removed by a packet reordering unit for the purpose of optimizing network communication

(column 3 lines 45-60, column 4 lines 30-50, column 6 lines 11-55 and claims 4,15,16&19).

It would have been obvious for one of ordinary skill in the art to modify Bellaton by

making the retransmit module identify two types of video signal packets as regular video frames

and as frames with small changes, wherein the packets containing video frames with small

changes are removed by a packet reordering unit as per the teachings of Shaffer for the purpose

of optimizing network communication.

6.   In reference to claims 3,23,43,63, Bellaton teaches claim 1 above, further comprising

removing from said retransmit module any of said packets upon said acknowledgment for said

any one of said packets being received prior to expiration of said first timer (column 3 lines 10-

45, column 4 lines 1-40, column 5 lines 20-67 & column 6 lines 25-67, Bellaton discloses not

retransmitting a packet if an acknowledgement is received).

In reference to claims 4,24,44,64, Bellaton teaches claim 1 above, further comprising placing

said acknowledgment for differing ones of said packets into a coalesced acknowledgment

(column 4 lines 1-40, column 5 lines 1-15, Bellaton discloses allowing a sequence of packets to be transmitted in a window combining the acknowledgement into a single acknowledgement).

7.   Claims 2,22,42,62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellaton (U.S. Patent No. 6,473,425) in view of Shaffer et al (U.S. Patent No. 6,236,642) in further view of Miller et al. (U.S. Patent No. 6,247,058).

Bellaton teaches claim 1 above. Bellaton fails to teach assigning at said retransmit module to each of said packets a second timer wherein expiration of said second timer is said occurrence of said predetermined event. However Miller teaches a timeout interval used to preserve network bandwidth by discarding old packets after the timer expires (column 4 lines 30-67 and column 8 lines 20-50).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by dropping packets based on an interval timer as per the teachings of Miller so as to preserve network bandwidth by discarding old packets after the timer expires.

8.   Claims 5-10,25-30,45-50,65-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellaton (U.S. Patent No. 6,473,425) in view of Shaffer et al (U.S. Patent No. 6,236,642) in further view of Lindsay (U.S. Patent No. 6,564,267).

9.   In reference to claims 5,25,45,65, Bellaton teaches claim 1 above. Bellaton fails to teach maintaining the bandwidth of said successively transmitted packets to the lesser of a congestion window initially determined to be maximum segment size and a client window size no greater

than the size of a UDP socket input buffer at said client. However Lindsay teaches maintaining

bandwidth of transmitted packets to the smaller of a first maximum segment size and a host

accepted second maximum segment size (column 2 lines 20-67 and column 4 lines 5-45).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by

maintaining bandwidth of transmitted packets to the smaller of a first maximum segment size as

per the teachings of Lindsay and a host accepted window size as taught by Bellaton so that the

connection can support different hosts.

10.   In reference to claims 6,26,46,66, Bellaton teaches claim 5 above. Bellaton fails to teach

wherein said congestion window is increased by the size of each packet for which an

acknowledgment is received. However Lindsay teaches receiving an acknowledgement and

increasing the window size (column 2 lines 20-67 and column 5 lines 15-50 and column 7 lines

10-55).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by

increasing the window size when an acknowledgement is received as per the teachings of

Lindsay to allow more packets to be sent in the connection and reduce redundancy.

11.   In reference to claims 7,27,47,67, Bellaton teaches claim 6 above. Bellaton fails to teach

wherein said congestion window is increased until said congestion window exceeds a

predetermined threshold, and increases thereafter by said maximum segment size for each

acknowledgment received. However Lindsay teaches receiving an acknowledgement and

increasing the window size by the maximum segment size (column 5 lines 15-50, column 7 lines

10-55 and column 10 lines 1-45).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by increasing the window size when an acknowledgement is received as per the teachings of Lindsay to allow more packets to be sent in the established connection and reduce redundancy.

12.   In reference to claims 8,28,48,68, Bellaton teaches claim 7 above. Bellaton fails to teach wherein said threshold is determined by a window size that is last known to be error free in receipt of said successively transmitted packets. However Lindsay teaches a window size determined to be free of errors (column 5 lines 15-67, column 6 lines 15-67).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by determining an error free window size as per the teachings of Lindsay to allow more packets to be efficiently sent in the connection.

13.   In reference to claims 9,29,49,69, Bellaton teaches claim 7 above. Bellaton fails to teach wherein said threshold is, upon retransmitting of any of said packets, set to the greater of 1/2 of the current congestion window size or maximum segment size. However Lindsay teaches setting the window size to less than the maximum segment size (column 5 lines 15-67, column 6 lines 15-67).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by setting the window size to less than the maximum segment size as per the teachings of Lindsay to transmit packets while increasing performance.

14.   In reference to claims 10,30,50,70, Bellaton teaches claim 9 above. Bellaton fails to teach wherein said congestion window is reset to said maximum segment size. However Lindsay teaches setting the window size to the maximum segment size (column 5 lines 15-67, column 6 lines 15-67).

It would have been obvious to one having ordinary skill in the art to modify Bellaton by

setting the window size to the maximum segment size as per the teachings of Lindsay to transmit

packets while increasing performance.

15.   Claims 14-20,34-40,54-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bellaton (U.S. Patent No. 6,473,425) in view of Shaffer et al (U.S. Patent No. 6,236,642) in

further view of Gubbi et al. (U.S. Patent No. 6,574,668).

16.   In reference to claims 14,34,54 Bellaton teaches a method, a network and a computer

readable medium for acknowledging receipt of packets sent from a network server to a network

client comprising steps of:

Transmitting successively packets from said server columns 1 lines 1-45 & column 7

lines 50-67 & column 8 lines 1-25, Bellaton discloses transmitting packets from a source/server

Receiving at said client several of said packets (columns 1 lines 1-45, Bellaton discloses

transmitting a packet to a destination/client)

Placing into a coalesced acknowledgment an ID of a first one of said several of said

packets received at said client (column 3 lines 10-45, column 8 lines 25-67 & column 9 lines 1-

40, Bellaton discloses assigning packet ID information and assigning a timer when packet is

sent); (column 4 lines 1-40, column 5 lines 1-15, Bellaton discloses allowing a sequence of

packets to be transmitted in a window combining the acknowledgement into a single

acknowledgement)

Transmitting to said server said coalesced acknowledgment (column 4 lines 1-40, column

5 lines 1-15, Bellaton discloses allowing a sequence of packets to be transmitted in a window

combining the acknowledgement into a single acknowledgement).

Bellaton fails to teach adding to said coalesced acknowledgment a bit map identifying

selected other ones of said several of said packets received at said client. However Gubbi teaches

a packet retransmission scheme with a bitmap indicating acknowledgement status of the received

packets (see Abstract, column 7 lines 30-60 and column 8 lines 1-20)

It would have been obvious to one having ordinary skill in the art to modify Bellaton by

adding a bitmap identifying packets received at client to an acknowledgement as per the

teachings of Gubbi so that a single command/acknowledgement packet can be used thus

reducing redundant transmissions.

Bellaton also fails to explicitly teach designating said packet as either one of a frame

packet and a differential packet based upon the content of said packet, and wherein differential

packets are removed more frequently than frame packets.. However, Shaffer teaches a network

retransmission system identifying two types of video signal packets as regular video frames and

as frames with small changes. The packets containing video frames with small changes are

removed by a packet reordering unit for the purpose of optimizing network communication

(column 3 lines 45-60, column 4 lines 30-50, column 6 lines 11-55 and claims 4,15,16&19).

It would have been obvious for one of ordinary skill in the art to modify Bellaton by

making the retransmit module identify two types of video signal packets as regular video frames

and as frames with small changes, wherein the packets containing video frames with small

changes are removed by a packet reordering unit as per the teachings of Shaffer for the purpose

of optimizing network communication.

17.   In reference to claims 15,35,55 Bellaton teaches claim 14 above. Bellaton fails to teach

sequentially assigning a sequence number as said ID to each of said successively transmitted

packets. (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 1-40, Bellaton discloses

assigning packet ID information, a sequence number given to the packets).

18.   In reference to claims 16,36,56 Bellaton teaches claim 15 above. Bellaton fails to teach

wherein said coalesced acknowledgment is sent upon said sequentially assigned sequence

numbers being wrapped. (column 4 lines 1-40, column 5 lines 1-15 & column 9 lines 1-40,

Bellaton discloses allowing sequenced packets to be transmitted in a window combining the

acknowledgement into a single acknowledgement).

19.   In reference to claims 17,37,57 Bellaton teaches claim 16 above. Bellaton fails to teach

sending an acknowledgment for any packet having a sequence number out of sequence with said

sequence number of an immediately received one of said packets. (column 4 lines 1-40, column

5 lines 1-15 & column 9 lines 20-67, Bellaton discloses a queue controller controlling and

acknowledging packets even with a packet out of sequence).

20.   In reference to claims 18,38,58 Bellaton teaches claim 15 above. Bellaton fails to teach

wherein said coalesced acknowledgment is sent upon expiration of a predetermined time from a

prior coalesced acknowledgment being sent (column 4 lines 1-40, column 5 lines 1-15 & column

9 lines 1-55, Bellaton discloses an acknowledgement being sent after a packet is retransmitted in

accordance with the expiration of a timer).

21.   In reference to claims 19,39,59 Bellaton teaches claim 18 above. Bellaton fails to teach

wherein said coalesced acknowledgment is sent upon expiration of said predetermined time in

the event said client has unacknowledged ones of said packets (column 4 lines 1-40, column 5

lines 1-15 & column 9 lines 1-55, Bellaton discloses an acknowledgement being sent after a

packet is retransmitted in accordance with the expiration of a timer where host has not received

acknowledgement).

22.   In reference to claims 20,40,60 Bellaton teaches claim 15 above. Bellaton fails to teach

wherein said coalesced acknowledgment is sent when said bitmap is full. However Gubbi

teaches a packet retransmission scheme with a bitmap indicating acknowledgement status of the

received packets and sending the acknowledgement when the bitmap is set (see Abstract, column

7 lines 30-60 and column 8 lines 1-20)

It would have been obvious to one having ordinary skill in the art to modify Bellaton by

sending the acknowledgement when the bitmap is set as per the teachings of Gubbi so that a

single command/acknowledgement packet can be used thus reducing redundancy transmissions.

Response to Amendment

23.   The examiner acknowledges the amended claims 1,14,19,21,34,41,43,54 and 61   filed on

3/22/2004.

24.   Applicant cancelled claims 11-13,31-33,51-53 and 71-80, and thus the rejection under 35

USC 112 is removed.

25.   Applicants amendments to claims 19 and 43 remove the previously indicated minor

informalities and thus the examiner withdraws the objection to claims 19 and 43.

Response to Arguments

26.   Applicant's arguments with respect to claims 1,14,21,34,41,54 and 61 have been

considered.

27.   Applicant's amendments and remarks regarding the claims are sufficient to overcome the

prior-art references. A response to the remarks will not be given because they are moot in view

of the new ground(s) of rejection.

28.   Applicants request for allowance is respectfully denied based on the newly cited art

above.

Conclusion

29.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. The following references teach elements of differential encoding in video streaming:

- Patent No US006501441B1

- Patent No US006593937B2

- Patent No US005768533

30.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ramy M Osman whose telephone number is (703) 305-8050.

The examiner can normally be reached on Monday through Friday 9AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ario Etienne can be reached on (703) 305-7562. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

RMO
June 10, 2004

ARIO ETIENNE
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